

IN THE CLAIMS

1. (cancelled)

2. (cancelled)

3. (cancelled)

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. (cancelled)

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (currently amended) ~~Apparatus according to claim 10~~  
Apparatus for the enhancement of neurophysiological processes of  
a patient by the stimulation of receptive cell fields in the  
visual pathways of the patient between the retina and the visual  
cortex, the apparatus including first visual display means for  
viewing by said patient and computer processing means producing

an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise;

further including second visual display means to be viewed by a therapist and therapist input means allowing said therapist to provide inputs to said processing means to vary said display;

further including feedback means providing an indication of said patient's performance to said computer processing means, and means for indicating said performance on said second visual display means; and

further including means for varying the display on said first visual display means to optimise said patient's brain response.

12. (previously presented) Apparatus according to claim 11 wherein the variations to the display on said first visual display means are made by said computer processing means without input from said therapist.

13. (cancelled)

14. (currently amended) Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise; and

further including means for controlling said patient's position relative to said first visual display means,

~~Apparatus according to claim 13 wherein said means for controlling said patient's position includes an electronically controllable seat capable of moving up, down and laterally, an electronically controllable backrest and an electronically controllable headrest.~~

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (currently amended) ~~Apparatus according to claim 1~~  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, wherein said visual stimulation image includes a plurality of dots and annuli.

20. (original) Apparatus according to claim 19 wherein said visual stimulation image includes a dot surrounded by a contrasting annulus.

21. (original) Apparatus according to claim 19 or 20 wherein said visual stimulation image provides stimulation to concentrically organised receptive cell fields of a patient.

22. (cancelled)

23. (currently amended) ~~Apparatus according to claim 1~~  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, wherein said therapeutic display elements include a first plane of parallel stripes rotating relative to a second plane of parallel stripes.

24. (currently amended) ~~Apparatus according to claim 1~~  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display

elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, wherein said therapeutic display elements include a brick pattern.

25. (cancelled)

26. (cancelled)

27. (currently amended) Apparatus according to claim 1  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said first visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, wherein at least one of said therapeutic

display elements moves to at least partially obscure a displayed cognitive exertion exercise.

28. (cancelled)

29. (cancelled)

30. (cancelled)

31. (cancelled)

32. (cancelled)

33. (currently amended) ~~Apparatus according to claim 31~~  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more contrast edges moving in a substantially linear path, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to

said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise,

wherein said therapeutic display elements include a dot surrounded by a contrasting annulus.

34. (currently amended) ~~Apparatus according to claim 31~~  
Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more contrast edges moving in a substantially linear path, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, wherein said therapeutic display elements are a pattern of bricks.

35. (currently amended) ~~Apparatus according to any one of claims 31-33 or to~~ 34 wherein the locus of movement of said visual display elements is periodically adjusted.

36. (original) Apparatus for the enhancement of neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient

between the retina and the visual cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, said apparatus further including means for generating an auditory cognitive exertion exercise including one or more auditory signals related to at least one of said visual cognitive exertion exercises.

37. (original) Apparatus according to claim 36 wherein said auditory cognitive exertion exercise is related to a visual cognitive exertion exercise displayed on said first visual display means and requires said patient to focus on said related visual cognitive exercise.

38. (original) Apparatus according to claim 36 or 37 wherein said auditory signals are computer generated speech signals.

39. (currently amended) ~~Apparatus according to claim 38~~  
Apparatus for the enhancement of neurophysiological processes of  
a patient by the stimulation of receptive cell fields in the  
visual pathways of the patient between the retina and the visual

cortex, the apparatus including first visual display means for viewing by said patient and computer processing means producing an output to said visual display means to cause a display on said visual display means, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said therapeutic display elements are displayed on said visual display means so as to provide therapeutic stimulation to said receptive cell fields of a patient whilst said patient is performing said cognitive exertion exercise, said apparatus further including means for generating an auditory cognitive exertion exercise including one or more auditory signals related to at least one of said visual cognitive exertion exercises,

wherein said auditory cognitive exertion exercise is related to a visual cognitive exertion exercise displayed on said first visual display means and requires said patient to focus on said related visual cognitive exercise,

wherein said auditory signals are computer generated speech signals, and

wherein said speech signals are acoustically modified by said computer processing means such that the temporal portion of said speech is adjusted but the spectral portion of said speech remains substantially constant.

40. (original) Apparatus according to claim 39 wherein said auditory signals are modified in response to input from a therapist.

41. (cancelled)

42. (cancelled)

43. (cancelled)

44. (cancelled)

45. (cancelled)

46. (cancelled)

47. (cancelled)

48. (currently amended) ~~A method according to claim 43 A~~  
method of enhancing neurophysiological processes of a patient by  
the stimulation of receptive cell fields in the visual pathways  
of the patient between the retina and the visual cortex, the  
method including the steps of generating an output from computer  
processing means to cause a display on visual display means for  
viewing by said patient, said display including at least one  
visual cognitive exertion exercise and at least one visual  
stimulation image including one or more therapeutic display  
elements targeted to stimulate selected ones of said receptive  
cell fields, said therapeutic display elements including one or  
more moving contrast edges, wherein said visual stimulation  
image provides therapeutic stimulation to selected ones of said  
receptive cell fields whilst said patient is performing said  
visual cognitive exertion exercise,

the method further including the step of receiving at said computer processing means feedback representing said patient's brain activity.

49. (currently amended) A method according to claim 48 further including the step of varying said display to optimiseoptimize said patient's brain activity.

50. (cancelled)

51. (currently amended) ~~A method according to claim 43 A method of enhancing neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the method including the steps of generating an output from computer processing means to cause a display on visual display means for viewing by said patient, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said visual stimulation image provides therapeutic stimulation to selected ones of said receptive cell fields whilst said patient is performing said visual cognitive exertion exercise, wherein said visual stimulation image includes a plurality of dots and annuli.~~

52. (original) A method according to claim 51 wherein said visual stimulation image includes a dot surrounded by a contrasting annulus.

53. (currently amended) A method according to claim 51 or 52 wherein said visual stimulation image provides stimulation to concentrically organisedorganized receptive cell fields of a patient.

54. (cancelled)

55. (currently amended) ~~A method according to claim 43 A~~  
method of enhancing neurophysiological processes of a patient by  
the stimulation of receptive cell fields in the visual pathways  
of the patient between the retina and the visual cortex, the  
method including the steps of generating an output from computer  
processing means to cause a display on visual display means for  
viewing by said patient, said display including at least one  
visual cognitive exertion exercise and at least one visual  
stimulation image including one or more therapeutic display  
elements targeted to stimulate selected ones of said receptive  
cell fields, said therapeutic display elements including one or  
more moving contrast edges, wherein said visual stimulation  
image provides therapeutic stimulation to selected ones of said  
receptive cell fields whilst said patient is performing said  
visual cognitive exertion exercise, wherein said therapeutic  
display elements include a first plane of parallel stripes  
rotating relative to a second plane of parallel stripes.

56. (currently amended) ~~A method according to claim 43 A~~  
method of enhancing neurophysiological processes of a patient by  
the stimulation of receptive cell fields in the visual pathways  
of the patient between the retina and the visual cortex, the  
method including the steps of generating an output from computer

processing means to cause a display on visual display means for viewing by said patient, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said visual stimulation image provides therapeutic stimulation to selected ones of said receptive cell fields whilst said patient is performing said visual cognitive exertion exercise, wherein said therapeutic display elements include a brick pattern.

57. (cancelled)

58. (cancelled)

59. (currently amended) A method according to claim 43 A method of enhancing neurophysiological processes of a patient by the stimulation of receptive cell fields in the visual pathways of the patient between the retina and the visual cortex, the method including the steps of generating an output from computer processing means to cause a display on visual display means for viewing by said patient, said display including at least one visual cognitive exertion exercise and at least one visual stimulation image including one or more therapeutic display elements targeted to stimulate selected ones of said receptive cell fields, said therapeutic display elements including one or more moving contrast edges, wherein said visual stimulation image provides therapeutic stimulation to selected ones of said receptive cell fields whilst said patient is performing said visual cognitive exertion exercise, wherein at least one of said

therapeutic display elements moves to at least partially obscure a displayed cognitive exertion exercise.

60. (cancelled)

61. (cancelled)

62. (currently amended) ~~A method according to claim 43—A~~  
method of enhancing neurophysiological processes of a patient by  
the stimulation of receptive cell fields in the visual pathways  
of the patient between the retina and the visual cortex, the  
method including the steps of generating an output from computer  
processing means to cause a display on visual display means for  
viewing by said patient, said display including at least one  
visual cognitive exertion exercise and at least one visual  
stimulation image including one or more therapeutic display  
elements targeted to stimulate selected ones of said receptive  
cell fields, said therapeutic display elements including one or  
more moving contrast edges, wherein said visual stimulation  
image provides therapeutic stimulation to selected ones of said  
receptive cell fields whilst said patient is performing said  
visual cognitive exertion exercise,

the method further including the step of providing to said patient an auditory cognitive exertion exercise related to said visual cognitive exertion exercise.

63. (currently amended) A method according to claim 43—~~62~~  
wherein said method is used in the treatment of disorders of at least one of reading, writing or speech.

64. (original) A method according to claim 63 wherein said method is used in the treatment of visual dyslexia.

65. (currently amended) A method according to claim ~~43~~62 wherein said method is used in the treatment of Attention Deficit Hyperactivity Disorder.